

A REVIEW OF THE AFRICAN MICE OF THE GENUS *DESMODILLISCUS* WETTSTEIN, 1916

BY

HENRY W. SETZER

Wettstein proposed the generic name *Desmodilliscus* in 1916, with the type species, *D. braueri*, based on a specimen from the road between Um Ramad and Nubbaka, south of El Obeid, in the Sudan. In 1920, Thomas and Hinton described a second species, *D. buchamani*, from near Kano, Nigeria. Ellerman (1941) regarded *braueri* and *buchamani* as synonymous at the specific level, but retained *buchamani* as a distinct subspecies. Few specimens have been recorded since the original descriptions of *braueri* and *buchamani*, although Dekeyser (1955:220) reported material from Niger, Mali, and western Chad; these specimens have not been seen by me. Also, a recent paper by Heim de Balsac (1967) recorded some additional interesting localities based on specimens now housed at the Museum National de Histoire Naturelle in Paris.

The majority of the specimens mentioned above are from owl pellets. It should be noted further that not a single individual here reported was taken in a trap; all were obtained at night by hand or in an insect sweeping net. The fact that no specimens were trapped is rather significant in that animals of even smaller size (*Mus minutoides*) were taken in Museum Special traps in the same areas where *Desmodilliscus* was caught by hand.

Other than the above-mentioned new cranial material, which I have not seen, the specimens of *Desmodilliscus braueri* available for study were pitifully few until 1966, when field teams of the Smithsonian Institution African Mammal Project obtained material from Senegal and Nigeria. Additional specimens were obtained in 1967 from Mauritania and Nigeria. As a result of the acquisition of this new material, it is felt that enough specimens now exist to warrant an attempt to define sexual as well as geographic variation in this genus. All measurements are in millimeters and color terms are from Ridgway (1912).

Tooth wear seems to be rather consistent in the populations studied, and it has been possible to sort out five age classes based on this criterion. Age class I consists of animals with unworn or relatively unworn teeth, but with M3 in place; individuals younger

than this were not considered. The remaining four age classes were arbitrarily selected based on the degree of closure of various enamel lakes with each other. Age classes II and III are relatively close, the last loph in M1 being contiguous in class III, but separate in class II. Class IV was determined by the closure of the enamel lakes in M2, whereas age class V was characterized by the absence of cusps but with all enamel lakes complete. No individuals showing extreme old age have been seen. The degree of wear for the various age classes is illustrated in Figure 1.

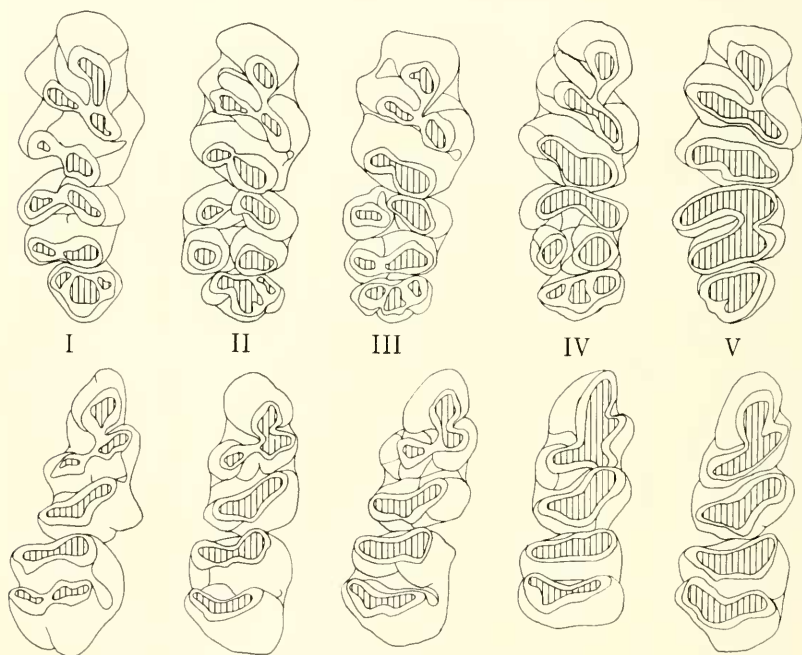


FIG. 1. Crown patterns of upper and lower molar teeth of five age classes of *Desmodilliscus braueri*. Top figures are right upper molars; lower figures are right lower molars.

A small sample of comparably aged males and females from the vicinity of Aleg, Mauritania, was tested for sexual variation. In only two characters, greatest breadth of rostrum and greatest breadth across zygomatic arches, of the 16 tested was any significance noted. Thus, in future studies it may be possible to pool males and females of comparable ages to enlarge samples for statistical purposes.

Further statistical testing between populations was attempted but sample sizes were so small that realistic interpretation of the

results was not reasonable. However, certain morphological features of the Senegalese and Mauritanian specimens indicate the presence of an undescribed subspecies of this small gerbil, which is named beyond, followed by a synopsis of the other two subspecies of *D. braueri*.

***Desmodilliscus braueri fuscus*, new subspecies**

Holotype.—Adult male, skin and skull, U.S. National Museum no. 378291, from Richard Toll, River Region, Senegal; obtained on March 18, 1966, by Richard M. Davis, original no. 2752.

Diagnosis.—Upper parts Olive-Brown in general appearance but most hairs tipped with Tawny-Olive; pure color (Tawny-Olive) edging dorsal Olive-Brown pattern; dorsal pattern generally strip-shaped, but extending from between the eyes over head and neck, dropping over shoulders then over back, tapering to a point at the base of the tail (if the skin were to be laid flat a cross-shaped pattern would be visible); underparts, dorsal surfaces of front and hind feet, minute supraorbital and postauricular spots pure white; tail sparsely covered with short, white hairs; skull small and delicate; auditory bullae extremely inflated; braincase broad and somewhat inflated; rostrum relatively short; and anterior palatine foramina long and wide open.

Comparisons.—When compared with a specimen of *Desmodilliscus braueri buchananii* of comparable age from Panisau (=Famiso), Northern Region, Nigeria, individuals of *D. b. fuscus* are generally darker and slightly smaller in external measurements. The rostrum is generally broader, the breadth of the braincase is less, the zygomatic arches are more nearly parallel sided, the anterior palatine foramina are longer, and the auditory bullae are slightly less inflated.

Specimens of *Desmodilliscus braueri braueri* have been studied at the British Museum (Natural History) but unfortunately these have not been compared directly with specimens of *D. b. fuscus*. However, because the range of *D. b. buchananii* lies between the ranges of *D. b. braueri* and *D. b. fuscus* it may be assumed that these latter two kinds differ from each other.

Measurements.—External and cranial measurements of the holotype are as follows: total length, 97; length of tail, 43; length of hind foot, 15; length of ear, 8; greatest length of skull, 21.2; least interorbital breadth, 3.8; condyloincisive length, 18.8; breadth across zygomatic arches, 12.2; greatest breadth of braincase, 10.5; greatest length of nasals, 6.0; greatest breadth of rostrum, 2.5; greatest length of audital portion of auditory bulla, 9.4; greatest breadth across auditory bullae, 12.6; length of anterior palatine foramina, 3.5; length of posterior palatine foramina, 2.5; crown length of maxillary tooththrow, 2.9.

Average and extreme measurements for six males from Richard Toll, River Region, Senegal, and six females from Ranerou, River Region, Senegal, are, respectively: total length, 99.5 (95-111), 102.8 (96-111); length of tail, 41.3 (39-43), 40.0 (38-45); length of hind foot, 15.0 (15), 14.6 (14-15); length of ear from notch, 8.7 (8-9), 8.3 (8-9); greatest length of skull, 21.5 (21.2-21.9), 20.9 (20.0-22.3); least interorbital breadth, 3.8 (3.5-4.0), 3.7 (3.5-3.9); condyloincisive length, 18.9 (18.5-19.3), 18.4 (17.6-19.1); greatest breadth across zygomatic arches, 12.5 (12.0-13.7), 12.3 (11.6-13.0); greatest breadth of braincase, 10.5

(10.1-10.7), 10.4 (9.9-10.7); greatest length of nasals, 6.9 (6.0-7.6), 7.0 (6.5-8.1); greatest breadth of rostrum, 2.6 (2.3-3.0), 2.4 (2.2-2.6); greatest length of audital portion of auditory bulla, 9.2 (8.7-9.5), 8.9 (8.4-9.6); greatest breadth across auditory bullae, 12.5 (12.1-12.8), 12.3 (11.7-12.8); length of anterior palatine foramina, 3.6 (3.2-3.8), 3.4 (3.0-3.7); length of posterior palatine foramina, 2.4 (2.3-2.5), 2.4 (2.2-2.6); crown length of maxillary toothrow, 3.0 (2.9-3.3), 2.9 (2.7-3.0).

Remarks.—The influence of the Senegal and the Niger rivers on the distribution of these small rodents is not at all clear. It appears that the Mauritanian and Senegalese populations of *Desmodilliscus* have not been long separated by the Senegal River. Assuming a center of dispersal in northern Nigeria, it is possible that the westward dispersion was north of the Niger and then southwestward and westward around the headwaters of the Senegal River. If this assumption is accepted, then we would expect to find markedly closer relationship between populations on either side of the Senegal River than would be expected between these populations and a population nearer the center of dispersal. This is actually what has been observed.

Heim de Balsac (1967:162) cited *Desmodilliscus* from Dori, Upper Volta, which lies south of the great bend of the Niger River. If this is a valid locality record, it is of extreme interest inasmuch as all other distributional records for this genus lie to the east, north, and west of the Niger. The zoogeographic implications of this distribution are difficult to explain. It can only be hoped that additional material can be obtained from the region of the great bend of the Niger to enable us to furnish some explanation of this rather odd pattern.

The habitat of *Desmodilliscus* appears to be rather level hard clay with small bushes and trees scattered throughout on small tussocks. Burrows, without any appreciable amount of dirt around or in front of them, were found under the scattered bushes (Fig. 2).

Other small mammals taken in this same habitat were *Jaculus*, *Taterillus*, and *Gerbillus* (subgenus *Dipodillus*).

Specimens examined, 72.—SENEGAL: Ranerou, River Region, 15° 18' N, 13° 58' W, 13; 5 km. S Bakel, River Region, 14° 51' N, 12° 28' W, 1; Linguere, Diourbel Region, 15° 24' N, 15° 07' W, 5; Ogo, 13 km. SW Matam, River Region, 15° 33' N, 13° 17' W, 5; Podor, River Region, 16° 40' N, 14° 57' W, 1; Richard Toll, River Region, 16° 28' N, 15° 41' W, 12. MAURITANIA: 3 km. S Aleg, 17° 02' N, 13° 55' W, 32; 5 km. S Aleg, 17° 02' N, 13° 55' W, 1; 6.2 km. S Aleg, 17° 02' N, 13° 55' W, 1; 26.7 km. S Aleg, 16° 48' N, 13° 53' W, 1.

Desmodilliscus braueri braueri Wettstein, 1916

Desmodilliscus braueri Wettstein, Anz. k. Akad. Wiss., Wien, 53 (14): 153, 1916; type locality, on the road between Um Ramad and Nubbaka, S of El Obeid, Sudan.

Measurements.—An adult male from 75 mi. W El Obeid measures as follows: total length, 102; length of tail, 45; length of hind foot, 15; greatest length of skull, 21.8; least interorbital breadth, 4.0; condyloincisive length, 18.5; greatest length of nasals, 7.7; greatest breadth of rostrum, 2.6; greatest length of audital portion of auditory bulla, 9.3; crown length of maxillary toothrow, 2.9.



FIG. 2. Typical habitat of *Desmodilliscus braueri* at a site 3 km. S Aleg, Mauritania.

Remarks.—It must be assumed that the two specimens examined represent the nominate subspecies inasmuch as they come from relatively near the type locality. The type specimen of *D. braueri* has not been examined.

Specimens examined, 2, both in British Museum (Natural History).—SUDAN: 75 mi. W El Obeid, 1; 140 mi. E El Fasher, 1.

Desmodilliscus braueri buchmanani Thomas and Hinton, 1920

Desmodilliscus buchmanani Thomas and Hinton, *Novitates Zool.*, 27:317, 15 June 1920; type locality, Farniso (=Panisau), near Kano, Nigeria.

Measurements.—Averages and extremes for seven males from Karaduwa, Northern Region, Nigeria, and measurements for a single female from 12 mi. N Sokoto, Northern Region, Nigeria, are, respectively: total length, 97.4 (95-101), 100; length of tail, 37.4 (36-39), 40; length of hind foot, 15.6 (15-16), 15; length of ear, 9.3 (9-10), 8; greatest length of skull, 21.1 (20.6-21.9), 21.0; least interorbital breadth, 3.7 (3.6-3.8), 3.4; condyloincisive length, 18.5 (18.1-19.0), 18.4; greatest breadth across zygomatic arches, 12.1 (12.0-12.2), 11.8; greatest breadth of braincase, 10.3 (10.1-10.5), 10.4; greatest length of nasals, 6.4 (6.0-6.9), 7.1; greatest breadth of rostrum, 2.4 (2.2-2.5), 2.5; greatest length of auditory portion of auditory bulla, 9.2 (8.9-9.6), 9.1; greatest breadth across auditory bullae, 12.3 (12.0-12.7), 12.1; length of anterior palatine foramina, 3.2 (3.1-3.5), 3.0; length of posterior palatine foramina, 2.5 (2.2-2.7), 2.5; crown length of maxillary toothrow, 3.1 (3.0-3.2), 2.9.

Remarks.—Specimens from Sokoto and Panisau have been compared with the type specimen of *D. b. buchmanani* in the British Museum (Natural History) and found to agree in detail both in color and cranial features. It is apparent,

from the few specimens available, that *D. b. buchanani* is darker in coloration and somewhat larger in most cranial measurements than other subspecies.

Specimens examined, 23.—NIGERIA: Panisau, Northern Region, 12° 05' N, 8° 32' E, 3 (1 British Museum); Karaduwa, Northern Region, 12° 19' N, 7° 41' E, 11; Tangaza, Northern Region, 13° 08' N, 5° 09' E, 5. NIGER: Teguida, N'tisem, W of Air, 1.

LITERATURE CITED

- DEKEYSER, P. L.
1955. Les mammiferes de l'Afrique Noire Francaise. Inst. Francaise d'Afrique Noire, 2nd ed., 1:1-426, illustrated
- HEIM DE BALSAC, H.
1967. La distribution reelle de *Desmodilliscus (Gerbillinae)*. Mammalia, 31:160-164.
- RIDGWAY, R.
1912. Color standards and color nomenclature. Washington, D.C., privately published, iii + 43 pp., 53 colored pls.
- THOMAS, O., AND M. A. C. HINTON
1920. Captain Angus Buchanan's Air Expedition. I. On a series of small mammals from Kano. Novit. Zool., 27:315-320.
- WETTSTEIN, O. v.
1916. Neue Gerbillinae aus Nordostafrika. Anz. k. Akad. Wiss., Wien, 53:151-154.